1 Find the prime factors of 102.

_____ **[2]**

2 **(a)** Simplify fully.

$$2x + 8y - 7 + x - 4y + 2$$

(a) ..... **[3]**

(b) Simplify fully.

$$\frac{15xy}{10y^2}$$

(b) ..... **[2]**

(c) Factorise fully.

$$4x^2 + 10xy$$

(c) ..... **[2]**

3 **(a** Simplify fully.

$$\frac{14x^2}{2x}$$

(a) ..... **[2]**

(b) Multiply out the brackets and simplify fully.

$5y(3y - 2) + 4(3y^2 - 2y + 5)$

(b) ..... **[4]**

(c) Factorise fully.

$10x - 15$

(c) ..... **[1]**

(d) Solve.

$x^2 + 5 = 21$

(d) ..... **[3]**

4 **(a)** Write 12 as the product of its prime factors.

(a) _____ **[1]**

(b) Jacinda makes sweets for a party.
The party is for **either** 8 people **or** 12 people.
She wants everyone at the party to have the same number of sweets, at least 3 sweets each, **with none left over**.

(i) Find the least number of sweets she must make, suitable for either 8 people or 12 people.

(b)(i) _____ **[2]**

(ii) Jacinda decides to make more than this least number of sweets for the party.

Describe a rule for her to work out greater numbers to make, so that everyone at the party can still have the same number of sweets as each other, with none left over.

_____

_____ **[2]**

5 (a) Work out.

$$(\sqrt{3})^2$$

(a) _____ **[1]**

(b) Multiply out and simplify fully.

$$(4 + 5\sqrt{3})(2 + 7\sqrt{3})$$

You must show your working.

(b) _____ **[3]**

6 **(a** Multiply out.

$6(3y + 5)$

(a) _____ **[1]**

(b) Factorise.

$5y - 15$

(b) _____ **[1]**

(c) Solve.

$7x - 2 = 5x + 11$

(c) _____ **[3]**

7 **(a** Write 420 as a product of its prime factors.

(a) _____ **[2]**

(b) Find the highest common factor (HCF) and the least common multiple (LCM) of 420 and 18.

(b) HCF = _____

LCM = _____ **[3]**